

METHODS AND APPARATUSES FOR PLANARIZING  
MICROELECTRONIC SUBSTRATE ASSEMBLIES

ABSTRACT OF THE DISCLOSURE

Methods and apparatuses for planarizing microelectronic substrate assemblies on fixed-abrasive polishing pads with non-abrasive lubricating planarizing solutions. One aspect of the invention is to deposit a lubricating planarizing solution without abrasive particles onto a fixed-abrasive polishing pad having a body, a planarizing surface on the body, and a plurality of abrasive particles fixedly attached to the body at the planarizing surface. The front face of a substrate assembly is pressed against the lubricating planarizing solution and at least a portion of the fixed abrasive particles on the planarizing surface of the polishing pad. At least one of the polishing pad or the substrate assembly is then moved with respect to the other to impart relative motion therebetween. As the substrate assembly moves relative to the polishing pad, regions of the front face are separated from the abrasive particles in the polishing pad by a lubricant-additive in the lubricating planarizing solution.